

RF Exposure Evaluation

LIMIT

The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f ²)	6
30–300	61.4	0.163	1.0	6
300–1500	-	-	f/300	6
1500–100,000	-	-	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30
30–300	27.5	0.073	0.2	30
300–1500	-	-	f/1500	30
1500–100,000	-	-	1.0	30

Note: f = frequency in MHz

EVALUATION METHOD

Transmission formula: $Pd = (Pout * G) / (4 * \pi * r^2)$

Where

Pd = power density in mW/cm², **Pout** = output power to antenna in mW, **G** = gain of antenna in linear scale;

Pi = 3.1416, **R** = distance between observation point and center of the radiator in cm

TEST RESULT

Passed

Not Applicable

2.4G/5G WIFI

Type	Conducted Average Power (dBm)	Maximum Tune-up (dBm)	Antenna Gain (dBi)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Result
802.11b	13.54	14.00	3dBi	0.00997	1.0000	Pass
802.11g	13.38	14.00	3dBi	0.00997	1.0000	Pass
802.11n(H20)	13.71	14.00	3dBi	0.00997	1.0000	Pass
802.11n(H40)	12.78	14.00	3dBi	0.00997	1.0000	Pass
5G Band 1 802.11a/n/ac	16.31	17.00	3dBi	0.01989	1.0000	Pass
5G Band 4 802.11a/n/ac	15.75	17.00	3dBi	0.01989	1.0000	Pass

WCDMA/LTE

Type	Frequency Band (MHz)	Maximum Tune-up (dBm)	Antenna Gain (dBi)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Result
WCDMA B2	1850 ~ 1910	25.00	2.81	0.12015	1.0000	Pass
WCDMA B4	1710 ~ 1755	25.00	0.90	0.07740	1.0000	Pass
WCDMA B5	824 ~ 849	25.00	-0.80	0.05233	0.5493	Pass
LTE B2	1850 ~ 1910	25.00	2.81	0.12015	1.0000	Pass
LTE B4	1710 ~ 1755	25.00	0.90	0.07740	1.0000	Pass
LTE B5	824 ~ 849	25.00	-0.80	0.05233	0.5493	Pass
LTE B7	2500 ~ 2570	25.00	2.07	0.10133	1.0000	Pass
LTE B12	699 ~ 716	25.00	0.01	0.06306	0.4660	Pass
LTE B13	777 ~ 787	25.00	-1.00	0.04997	0.5180	Pass
LTE B14	788 ~ 798	25.00	-1.35	0.04610	0.5253	Pass
LTE B17	704 ~ 716	25.00	0.01	0.06306	0.4693	Pass
LTE B25	1850 ~ 1915	25.00	2.81	0.12015	1.0000	Pass
LTE B26	814 ~ 849	25.00	-0.80	0.05233	0.5427	Pass
LTE B30	2305 ~ 2315	25.00	2.08	0.10156	1.0000	Pass
LTE B38	2570 ~ 2620	28.00	0.79	0.15057	1.0000	Pass
LTE B41	2496 ~ 2690	28.00	2.07	0.20218	1.0000	Pass
LTE B48	3550 ~ 3700	25.00	1.32	0.08526	1.0000	Pass
LTE B66	1710 ~ 1780	25.00	1.78	0.09478	1.0000	Pass
LTE B71	663 ~ 698	25.00	-0.83	0.05197	0.4420	Pass

5G

Test Mode	Frequency Band (MHz)	Maximum Conducted	Antenna Gain	Power Density at 20cm	Limit (mW/	Result
n2	1850 ~ 1910	25.00	2.81	0.12015	1.0000	Pass
n5	824 ~ 849	25.00	-0.80	0.05233	0.5493	Pass
n7	2500 ~ 2570	25.00	2.07	0.10133	1.0000	Pass
n12	699 ~ 716	25.00	0.01	0.06306	0.4660	Pass
n25	1850 ~ 1915	25.00	2.81	0.12015	1.0000	Pass
n41	2496 ~ 2690	28.00	2.07	0.20218	1.0000	Pass
n66	1710 ~ 1780	25.00	1.78	0.09478	1.0000	Pass
n71	663 ~ 698	25.00	-0.83	0.05197	1.0000	Pass
n77	3700 ~ 3980	27.00	5.00	0.31530	1.0000	Pass